



The Blurb



Newsletter of The Phil-Mont Mobile Radio Club

64 Years of Public Service, 1949 to 2013

Volume 64 Number 6

www.phil-mont.org

June 2013

What's up in June...

Flag Day

Father's Day

Field Day

Saturday VE session

And here's the last article from Bob W3NE

(Or so he thinks!)

THIS AND THAT
Miscellaneous Ramblings
Bob Thomas, W3NE



Professor Bob, W3NE

RCA RADIO CENTRAL –PART 2
World's greatest SW station

The first part this article described facilities established by RCA Communications for their new Radio Central transmission station on the north shore of Long Island at Rocky Point. A complementary receiving station and research laboratory were constructed in Pine Barrens sixteen miles to the southeast at Riverhead. The first Riverhead "laboratory" was, in fact, nothing more than a tent used during the autumn of 1919 by Philip Carter and Dr. Harold. H. Beverage, 2BML, as their headquarters for investigations of radio reception. Carter was a mathematician and antenna expert, and Beverage had developed a highly successful long wave directional receiving antenna – still widely used today – that bears his name.¹

Continued on page 5

<p><i>The Blurb</i> is published monthly by and for the members of The PHIL-MONT MOBILE RADIO CLUB, Inc., whose purpose is to promote Amateur Radio in general, and Mobile Radio in particular. <i>Copying and quoting</i> is permitted with a credit line. We gladly exchange publications with other amateur radio clubs.</p> <p>Requests should be sent to the Editor.</p> <p><i>Subscriptions</i> are available to non-members for \$12, addressed to the Treasurer.</p> <p>Editor: Rick DeVirgiliis ND3B nd3b@arrl.net 215-908-7225</p> <p>Labels and mailing: KB3IV</p> <p>Submissions deadline: All copy must be in the hands of the Editor by the 20th of the previous month.</p>		<p>Directors:</p> <p>WU3I (14) KB3SJS(14) KB3MIV(14) WA3KIO(13) N3QV(13) K3GBA(13) W3AOK(A)</p>	<p>Contact Phil-Mont: P.O. Box 88 Abington, PA 19001 http://www.phil-mont.org Website: Eric N3QV & Andrew KC2PMW</p> <p>For club information: Contact any club officer, or the repeaters listed below. Address or club directory changes and articles for the membership e-mail list should be sent to: KB3IV</p>
		<p>Sunday Morning Net Schedules</p> <ul style="list-style-type: none"> • 2 Meter/ 70cm Net..... at 0930L on W3QV repeater • 10-on-10 Net at 1000L 28.393 MHz USB (±QRM) • 75 meter Net at 1020L 3.993 MHz LSB • ARES at 2100L on the W3QV repeater 	
<p>Committees</p> <p>Audit: NS3K Blurb folding: KB3IV & N3GLU Directory: KB3IV</p>	<p>DX: N3MT Emerg.Coor: K3HWE Field Day: KE3QB Internet: N3QV & KC2PMW Membership: N3XKE</p>	<p>Net Control: KB3IV Publicity: W3RM Program: Club VP Public Service: KE3QB Refreshments: W3AOK Repeater: W3AOK</p>	<p>Scholarship: W3RM Sunshine: N3GLU VE Program: NS3K Welcome: N3UBY Youth: KC2PMW</p>

All visitors are welcome!

The club meets at 7:30 PM on the *second* non-holiday Wednesday each month except July and August at **Roxborough Memorial Hospital**, 5800 Ridge Avenue, Philadelphia, PA 19128
Maps and directions are available at www.phil-mont.org.

License Examinations are held on the fourth **non-holiday Thursday** each month at **Community Ambulance Association, 1414 E. Butler Pike, Ambler PA 19002**
Registration begins at 7:00 P.M. Applicants should contact Jim McCloskey NS3K at 215-275-2979 or jmccloskey@msn.com for the latest information.

Club Stations W3QV/R: The Jim Spencer Memorial Repeater System
Ridge & Port Royal Avenues, Philadelphia, PA **Trustee: W3RM**
147.03 MHz + PL 91.5 Hz 444.80 MHz + PL 186.2 Hz
Reach us on EchoLink through W3QV-R
W3AA Trustee: WU3I
W3EM: Field Day/special event station Trustee: N3QV

The Officers

Pres: KB2ERL Bob Nicotera bnic1903@msn.com
Vice Pres: W3STW Al Tribble wstw@juno.com
Sec: ND3B Rick Devirgiliis nd3b@arrl.net
Treas: W3RM Richard A. Moll roger.mike@verizon.net
Asst. Treas: N3MT Michael P. Taraborrelli michaelmt_1999@yahoo.com

The Prez Sez ...



See you all at Field Day!

73 Bob, KB2ERL

***Phil-Mont
Birthdays & Tidbytes***

JUNE BIRTHDAYS

03 Jennifer Caswell – KB3MIV

04 Dick Moll - W3RM

Sue Sadwin - N2CYA

10 Thomas Maresca (OM K3YPH)

15 Caitlin Brady – W3CJB

John Coupe - WA3BXH

Salvatore Marandola - NC3U

23 Olga Guerra (XYL KB1QW)

30 Mike Lenczynski - KA3EIP

Fred Rice - WA3KIO

MEMBERSHIP STATS

At press time P.M.R.C. has:

80 Full paid members

10 Family members

2 Youth members

1 Honorary member



***The Thursday evening session is on the
27th this month as well as the quarterly
Saturday morning session on the 8th.
As always, many thanks to our VE team!***

From the Secretary...***PMRC BoD Minutes 5/1/2013***

The meeting convened at 2000 hours local time attending were Bill, W3AOK; Doug, WA3DSP; Bob, KB2ERL; Sam, K3GBA; Steve, WU3I ; Ed, KB3IV ; Fred, WA3KIO; Dick, W3RM ; John, KB3SJS and Al, W3STW. Club president Bob thanked the group for coming out and called for reports.

Dick handed out a written treasury report that indicates the Club's treasury and investments are in good shape. Our commitment to the Scholarship's Fund program for year 2013 has been met.

Dick read a request from FAR, wanting to know how the Club felt about the inclusion of FAR candidates earning college credits via on line courses. After discussion the BoD, on behalf of the Club moved in the positive to inform FAR that the Club does not oppose FAR candidates earning college credits from on line college courses.

Regarding the Club's repeater system, other than a minor malfunction occurring this afternoon, Bill reports, at meeting time, the system is functioning as intended.

Regarding membership, Ed made a motion to accept Harrison Gift's, K3HWG request for Club membership. The BoD passed the motion without opposition and Ed will handle the necessary documents and badge detail.

Al, program chairman, says this month the program will feature the establishment of the Ann's Choice Amateur Radio Station (ACARS); for June, the program features a discussion about Field Day details and programming hand held radios presented by Ed; in September Fred presents an inside look to SEPTA.. In October, Doug gives us some insight to operating IRLP. Old Timer's Night in November and the Annual general meeting featuring election of officers in December rounds out the year. Regarding the preservation and storage of the "Blurb," Doug mentioned scanning them to compact discs. After a short discussion resulted in nothing definite, the issue was set aside for future consideration.

Short discussions on Club caps and "T" shirts and the Club's participation in the Holmesburg Amateur

Radio Club 13 Colonies Special Event taking place July 1-5, 2013. Bob will look into the cap and "T"

shirt project. The BoD takes the position that any Club members is free to help in the HARC 13 Colonies Special Event, they would be representing themselves.

A motion to adjourn was moved at 2125 hours local time.

de Al W3STW

Thanks Al, ya did it again!

PMRC General Meeting 5/8/2013

President Bob started the meeting at 1945 hrs. and asked for reports with the exception of W3AOK and W3RM. (We missed you guys!)

John, KB3SJS has band captains for all but the GOTA station which is usually manned by Andrew, KC2PMW. This remains to be confirmed.

He also told us that his XYL Keiko, KB2SJT has offered to take over the duties of the membership committee and provide badges and certificates for new members. Rick, ND3B requests members submit material to the Blurb, as always, but especially since Bob, W3NE will retire after his article in June edition.

NS3K says there will be a Saturday VE session on June 8th at 0900. The DRATS digital club will meet immediately after.

KB3IV reports all is well with the net schedules and control operators.

In addition to the usual June topic of Field Day he will demonstrate how to program HT's and Mobile rigs using a computer with programming software. Doug, WA3DSP reports the installation of a pre-amp at the Bucks input which improved performance substantially.

WU3I requested all members coming to Field Day let him know what meals they will join in. He needs a head count to buy supplies.

Guests and potential members JD Kramer, KC3AIQ and Al's guest Norm Dyer, W3RZY attended as well. Hope to see more of them!

At this time Al, W3STW began his long awaited presentation on the Ann's Choice Radio System or ACARS.

de Rick, ND3B

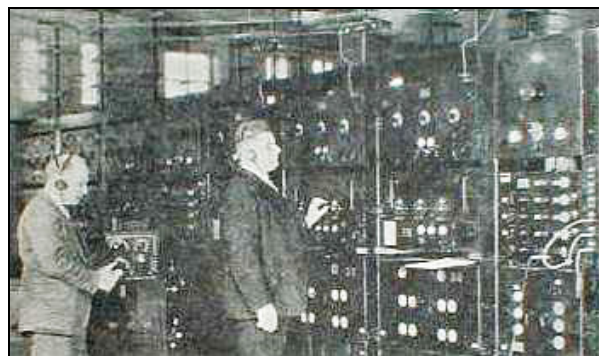
W3NE continued from cover:**The first RCA research laboratory, ca. 1919**

Those were indeed days of the radio pioneer. Beverage and Carter went about constructing the first receiving antenna for Radio Central by laying down a wire, right on the ground, along a sand road for several *miles* from Riverhead in a northeast direction toward Europe. A terminating resistor was connected to a good ground near a river at the east end of the wire, forming what Beverage termed his “wave” antenna. It proved successful so they erected a more permanent wave antenna at a height of 30 feet on utility poles. The principle of operation of his antenna is explained by Beverage in his own inimitable words as follows: ²

“The wave drags its feet [due to high ground losses] it tips over a little bit and that tipping over means there’s a little component that will induce a voltage in the wire. As the signal travels along at the velocity of light it induces a little signal that keeps building up and building up until at the far end it’s quite strong. As a matter of fact if you wanted to receive a signal as strong as you got with the wave antenna, you would have to put up a tower at least 1000 feet high. . . . To prevent reflection, to make it unidirectional, because losses are low on the wire on the pole, you place a damping resistance at the end nearest the transmitting station. That stops the reflection just like the high velocities did on the wire on the ground. The beauty of the wave antenna is that it is not tuned to anything periodic and it receives a wide band of wavelengths equally well.”

Riverside went into operation with long wave reception just as the superiority of shortwave

propagation was being recognized, so most overseas traffic initially was still on long waves at about 20 kc. Two Beverage antennas were used, each 9 miles long, spaced 5 miles (about $\lambda/2$) apart. The wires were terminated at the far end to make them unidirectional and a phasing network at the receiving end of one wire enabled electrically steering their combined directive patterns. Sixteen LF receivers were eventually connected to the combined Beverage array, each tuned to a different incoming signal.

**Peterson (left) and Beverage adjusting receivers.**

Rather than single-knob gang tuning, those receivers had three stages of individually-tuned RF amplifiers; however, since most long wave circuits seldom changed, retuning was not required very often. Amplified RF was rectified to drive pen recorders at the control center in Manhattan for CW above 30 wpm. A heterodyne detector generated tone output for copy by operators at lower speeds or when there was severe QRN.

Conversion of Radio Central transmitting and receiving facilities got underway immediately after the DX advantages of high frequency radio (above 1500 kc.) were verified. However, a serious problem with HF reception, not encountered at long wavelengths, is fading. It is caused by changes in the ionosphere that rapidly shift the arrival time of the sky wave at a receive antenna. Experiments by Dr. Beverage and H.O. Peterson were made with simultaneous observations of the same signal received at locations three miles apart. They found that entirely different distortions due to fading occurred at the two places. They later discovered that separate receivers connected to two antennas as close as 300 feet produced vastly different output

distortion during fades. That led them to invention of *diversity reception*.³

A typical space diversity receiving system at Riverhead consisted of three widely separated antennas each feeding it's a separate receiver.

Receiver outputs were combined to produce a signal that was essentially free of fading artifacts. The antennas were variations of the original Beverage but known as "fishbone" antennas because they had loosely-coupled right angle extensions placed at intervals along the main wires. The space diversity antennas had a bandwidth with a 2:1 frequency range, so several receivers tuned to different frequencies could be fed by one antenna system. Numerous sets of diversity antennas were individually aligned in the direction of transmissions from around the world.

HF receivers covered from 3 to 24 Mc. in three bands. They were superhets with a 300 kc. first IF and 50 kc. second IF. Bandwidth was selectable from 1 to 10 kc., depending on type of service. Instead of a BFO for CW detection, the 50 kc. second IF was rectified and used to drive a pen recorder or Wheatstone perforator for high speed CW or to key an audio oscillator for manual copy below 30 wpm. Keyed tones were sent by telephone line to the New York Control Center where operators heard pure tones completely devoid of noise, QRM and amplitude fluctuations for solid copy. A 1940 ARRL visitor described the effect as sounding, "just like a code practice oscillator." By the late 1920s RCA had installed 41 of these triple-diversity receivers for reception from 26 different countries. An interesting sidelight is that all the receivers at Riverhead were powered from a massive bank of storage batteries to ensure reliability independent of public utility failure. Total d-c load current was over 1000 Amperes!

Introduction of diversity reception yielded enormous improvements in quality and reliability of short wave AM broadcasts. By the late 1940s RCA Communications had regular short wave circuits to over forty countries. Services included program relays, ship-to-shore messages, commercial traffic, press reports, RTTY and facsimile transmission and reception of photographs and documents.

Domination of marine communications had been assured when David Sarnoff, through his earlier

personal association shipboard operators, flipped 900 ship owners from competitive services to RCA. An agreement between RCA and Western Union extended the range of domestic telegrams originating at local telegraph offices to world-wide destinations. A frequency-measuring service was available to broadcasters and scientific labs. Radio Central laboratories were deeply involved with investigations of VHF, UHF, and microwave propagation, antennas, and relay equipment. Lessons learned at the two Long Island facilities were forwarded to the other RCA Communications centers at Point Reyes, CA and Koko Head Hawaii.

Radio Central facilities were devoted exclusively to military and government communications and strategic research during WW-II. Commercial operations resumed immediately after the war and the Riverhead laboratory continued its pre-war development programs, particularly those associated with TTY multiplexing, SSB, and TV relay systems. But earthbound communications were becoming obsolete as geostationary satellite technology developed. As put so poignantly by Bob McGraw, W2LYH, a Riverhead technician, "Like blacksmiths watching the first automobiles coming down the road, we knew the end was near every time a few more of our circuits got transferred to satellites."

The last Station Manager at Riverhead was Marshall Etter, W2ER, who had worked alongside Harold Beverage after joining RCA in 1937. It was left to Marshall to literally turn off the light and shut the door for the last time at the historic receiving site.

He and a few remaining Riverside personnel transferred to the Rocky Point transmitting station which itself was closed in 1977, ending 56 years of excellence in commercial radio communications. Marshall saved many records and historic relics. Fortunately, he attended annual Antique Wireless Association conference/flea markets for many years where it was always a treat to listen to the tales of a ham who had been intimately involved with RCA Radio Central.

REFERENCES:

- ¹ U.S. Patent 1,381,089 (H.H. Beverage)
Radio Receiving System
- ² Interview with Dr. Harold H. Beverage
<http://www.qsl.net/aa3px/1968.html>
- ³ U.S. Patent 1,874,866 (Beverage/Peterson)
Method for Eliminating Fading

This marks the 57th article in the monthly series published by the *Blurb* in the last five years. The time has come for a break so, in keeping with last month's concluding comment, I am going to sign-off for a while. I hope the articles have been as interesting for readers as they were a stimulating exercise for me!

I cannot close without expressing my deep appreciation for Editor Rick who formatted the manuscripts and illustrations so skillfully. This is not my total retirement – just a vacation. “I’ll be back.”

73, NE

Tempus (57??) fugit! I can't imagine the Blurb without your amazing stories. Thanks for all your hard work and sharing all your experiences and memories with us. I hope you're putting them all in a book for future generations.

Alas, we shall miss thee NE!

For Sale:

Heathkit SB220 linear amplifier excellent condition low hours
\$650.00 contact Frank KB2AYS at 609-312-9392 (*de Bob, ERL*)

Check out this rope for your antenna project –

3/32" Braided Olive Drab - Dacron / Polyester cord

This is a high quality braided polyester cord with a breaking strength of 210 pounds. Proudly Made in the U.S.A.!

This is a gorgeous solid braid perfect for dipole antennas. Very low stretch and strong. Will withstand the weather & sun for 7 to 10 years.

PRICE \$10.00 PER 100 FEET

SOLD IN 100 FOOT LOTS

CONTACT STEVE WU3I AT WU3I@ARRL.NET

Free to good home - Motorola modem and Netgear wireless router. They work fine but I'm still looking for the installation CD. Call or write ND3B (contact info on page 2)

Have you heard about D-Star?

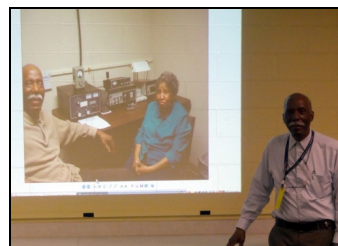
Philadelphia Digital Radio Assn meets the first non-holiday Monday of each month at the Community Ambulance Assn 1440 East Butler Pike Ambler, Pa. 19002 at 7:00 pm.

The club has two D-star repeaters on the following frequencies: On two meters - 146.61 (-) and on 70 cm 445.18125 (-)

I run a weekly club D-star net on Mondays at 8:00 pm local time on the club 2 meter frequency.

de Jim, NS3K

VP Al, W3STW, told us about ACARS, the club he founded, at the MAY meeting.



Al and better half Justine



ACARS station



Mr. Satellite himself

Thanks to Doug, WA3DSP for photos

June at Phil-Mont

2 Sun KC2PMW
 8 Saturday VE session 0900
 9 Sun W3STW
 14 Fri Flag Day
 16 Sun KB3IV Father's Day
 21 Fri First day of Summer
 22 Sat Field day thru Sun 23rd
 23 Sun NC3U
 27 Thur VE evening session
 30 Sun N3QV

Also in June...

2nd Radio patented 1896
 4th First Ford car built
 7th Donut day (*May as well call it
 Homer Simpson day!*)
 12th Baseball invented 1839
 24th UFO day

***Don't forget the ARES net on Sunday nights and
 the Digital net on Tuesday nights.***

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First Class Mail

The Phil-Mont Mobile Radio Club, Inc
 1700 Street Rd. Apt. H3, Warrington PA, 18976

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